

Remarks

The Final Office Action mailed October 5, 2005 has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1-21 are pending in this application. Claims 4-9 and 14-19 have been withdrawn from consideration. Claims 1-3, 10-13, 20, and 21 stand rejected. Claims 1, 10, 11, 20, and 21 have been amended herein. No new matter has been added.

The objection to the drawings is respectfully traversed. As discussed in a teleconference with the Examiner on January 4, 2005, the original Figure 4 was canceled in the Amendment mailed July 18, 2005. Accordingly, Applicants respectfully request that the objection to the drawings be withdrawn.

The objection to Claim 16 because of informalities is respectfully traversed. Claim 16 has been labeled herein with the correct status identifier of "withdrawn". Accordingly, Applicants respectfully request that the objection to Claim 16 be withdrawn.

The rejection of Claims 20 and 21 under 35 U.S.C. § 112, second paragraph, is respectfully traversed. For example, Claim 20 has been amended, for reasons other than the Section 112 rejection, to delete the recitation "reducing a curvature of an x-ray beam profile formed on the detector by performing the collimating the beam of radiation". Claim 21 has been amended, for reasons other than the Section 112 rejection, to delete the recitation "pre-patient collimator is configured to reduce the curvature during formation of a variety of sizes of apertures between a plurality of cams of the pre-patient collimator". Claims 20 and 21 are therefore submitted as satisfying the requirements of Section 112. Accordingly, Applicants respectfully request that the Section 112 rejection of Claims 20 and 21 be withdrawn.

The rejection of Claims 1, 2, 10-12, 20, and 21 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,317,616 (Swerdloff) is respectfully traversed.

Swerdloff et al. describe a system in which a conical beam (14') is collimated by a radiation opaque mask (16) constructed of a set of rectangular collimator blades to form a generally planar fan beam (14) centered about a fan beam plane (20)

(column 4, lines 50-54). Each leaf (30) of a compensator (22) centered in the fan beam may slide completely within its corresponding sleeve (24) to block a ray (28) associated with that sleeve (column 5, lines 9-11). When the leaf blocks its corresponding ray (28), it is referred to as being in a "closed state" (column 5, lines 11-12). The sleeves are of ample length to permit each leaf to slide out of the path of the fan beam, so as to leave its corresponding ray (28) completely unobstructed, and yet to still be guided by the sleeve (column 5, lines 13-16). In this non-blocking position, a leaf is referred to as being in the "open state" (column 5, lines 16-18).

Claim 1 recites an imaging system comprising "a radiation source configured to generate a beam...a pre-patient collimator configured to collimate the beam to generate a collimated beam...and a detector configured to detect the collimated beam, wherein the collimator is one of...a first collimator comprising at least one radio opaque member having a curved contour proportional to a contour of the detector...a second collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of said blades are different from each other...and a third collimator having at least two sets of plates, wherein said plates in a set pivot with respect to each other."

Swerdloff does not describe or suggest an imaging system as recited in Claim 1. For example, Swerdloff does not describe or suggest a first collimator including at least one radio opaque member having a curved contour proportional to a contour of the detector, a second collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of the blades are different from each other, or a third collimator having at least two sets of plates, wherein the plates in a set pivot with respect to each other. Swerdloff describes a compensator having a plurality of radio opaque leaves that each slide within a corresponding sleeve to block portions of an x-ray fan beam. Although a portion of the sleeves is curved such that the leaves are arranged in an arc about the x-ray beam focal point, the sleeves are constructed of a radio translucent material. As such, Swerdloff does not describe or suggest a collimator including at least one radio opaque member having a curved contour proportional to a contour of the detector. Swerdloff also does not describe or suggest a collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of the blades are different from each other, or a collimator having at least two sets

of plates, wherein the plates in a set pivot with respect to each other. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Swerdloff.

Claims 2, 10, and 21 depend from independent Claim 1. When the recitations of Claims 2, 10, and 21 are considered in combination with the recitations of Claim 1, Applicants submit that Claims 2, 10, and 21 likewise are patentable over Swerdloff.

Claim 11 recites a computed tomography imaging system comprising “an x-ray source configured to generate a beam...a collimator configured to collimate the x-ray beam to generate a collimated x-ray beam...and a detector configured to detect the collimated x-ray beam, wherein the collimator is one of: a first collimator comprising at least one radio opaque member having a curved contour proportional to a contour of the detector...a second collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of said blades are different from each other...and a third collimator having at least two sets of plates, wherein said plates in a set pivot with respect to each other.”

Swerdloff does not describe or suggest a computed tomography imaging system as recited in Claim 11. For example, and as discussed above, Swerdloff does not describe or suggest a first collimator including at least one radio opaque member having a curved contour proportional to a contour of the detector, a second collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of the blades are different from each other, or a third collimator having at least two sets of plates, wherein the plates in a set pivot with respect to each other. For at least the reasons set forth above, Claim 11 is submitted to be patentable over Swerdloff.

Claim 12 depends from independent Claim 11. When the recitations of Claim 12 are considered in combination with the recitations of Claim 11, Applicants submit that Claim 12 likewise is patentable over Swerdloff.

Claim 20 recites a method for reducing dosage of radiation incident on a subject, the method comprising “transmitting a beam of radiation toward the subject...collimating the beam of radiation before the beam reaches the subject...and detecting, by a detector, the collimated beam of radiation, wherein the collimating is performed by one of...a first collimator comprising at least one radio opaque member

having a curved contour proportional to a contour of a detector that detects the collimated beam...a second collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of said blades are different from each other...and a third collimator having at least two sets of plates, wherein said plates in a set pivot with respect to each other.”

Swerdloff does not describe or suggest a method for reducing dosage of radiation as recited in Claim 20. For example, and as discussed above, Swerdloff does not describe or suggest collimating by a first collimator including at least one radio opaque member having a curved contour proportional to a contour of the detector, a second collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of the blades are different from each other, or a third collimator having at least two sets of plates, wherein the plates in a set pivot with respect to each other. For at least the reasons set forth above, Claim 20 is submitted to be patentable over Swerdloff.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1, 2, 10-12, 20, and 21 be withdrawn.

The rejection of Claims 3 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Swerdloff in view of U.S. Patent 5,801,939 (Okazaki) is respectfully traversed.

Swerdloff is described above. Okazaki describes a system including a coarse positioner displaced by a first adjusted command signal (column 5, lines 32-33). The system further includes a fine positioner displaced together with the coarse positioner by a second adjusted command signal and having a smaller range of displacement but a higher positioning resolution than the coarse positioner (column 5, lines 34-37).

Claim 3 depends from independent Claim 1 which is recited above. As discussed above, Swerdloff does not describe or suggest a first collimator including at least one radio opaque member having a curved contour proportional to a contour of the detector, a second collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of the blades are different from each other, or a third collimator having at least two sets of plates, wherein the plates in a set pivot with

respect to each other. Okazaki does not make up for the deficiencies of Swerdloff. Accordingly, a combination of Swerdloff and Okazaki does not describe or suggest an imaging system as recited in Claim 1. For at least the reasons set forth above, Claim 1 is submitted to be patentable over Swerdloff in view of Okazaki.

When the recitations of Claim 3 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claim 3 likewise is patentable over Swerdloff in view of Okazaki.

Claim 13 depends from independent Claim 11, which is recited above. As discussed above, Swerdloff does not describe or suggest a first collimator including at least one radio opaque member having a curved contour proportional to a contour of the detector, a second collimator with blades, wherein slopes of two oppositely-facing surfaces of at least one of the blades are different from each other, or a third collimator having at least two sets of plates, wherein the plates in a set pivot with respect to each other. Okazaki does not make up for the deficiencies of Swerdloff. Accordingly, a combination of Swerdloff and Okazaki does not describe or suggest a computed tomography imaging system as recited in Claim 11. For at least the reasons set forth above, Claim 11 is submitted to be patentable over Swerdloff in view of Okazaki.

When the recitations of Claim 13 are considered in combination with the recitations of Claim 11, Applicants submit that dependent Claim 13 likewise is patentable over Swerdloff in view of Okazaki.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 3 and 13 be withdrawn.

Moreover, Applicants respectfully submit that the Section 103 rejection of Claims 3 and 13 is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Swerdloff nor Okazaki, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicants respectfully submit that it would not be obvious to one

skilled in the art to combine Swerdloff with Okazaki because there is no motivation to combine the references suggested in the cited art itself.

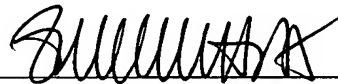
As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. *In re Vaeck*, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103 rejections of Claims 3 and 13 be withdrawn.

For at least the reasons set forth above, Applicants respectfully request that the rejections of Claims 3 and 13 under 35 U.S.C. 103(a) be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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